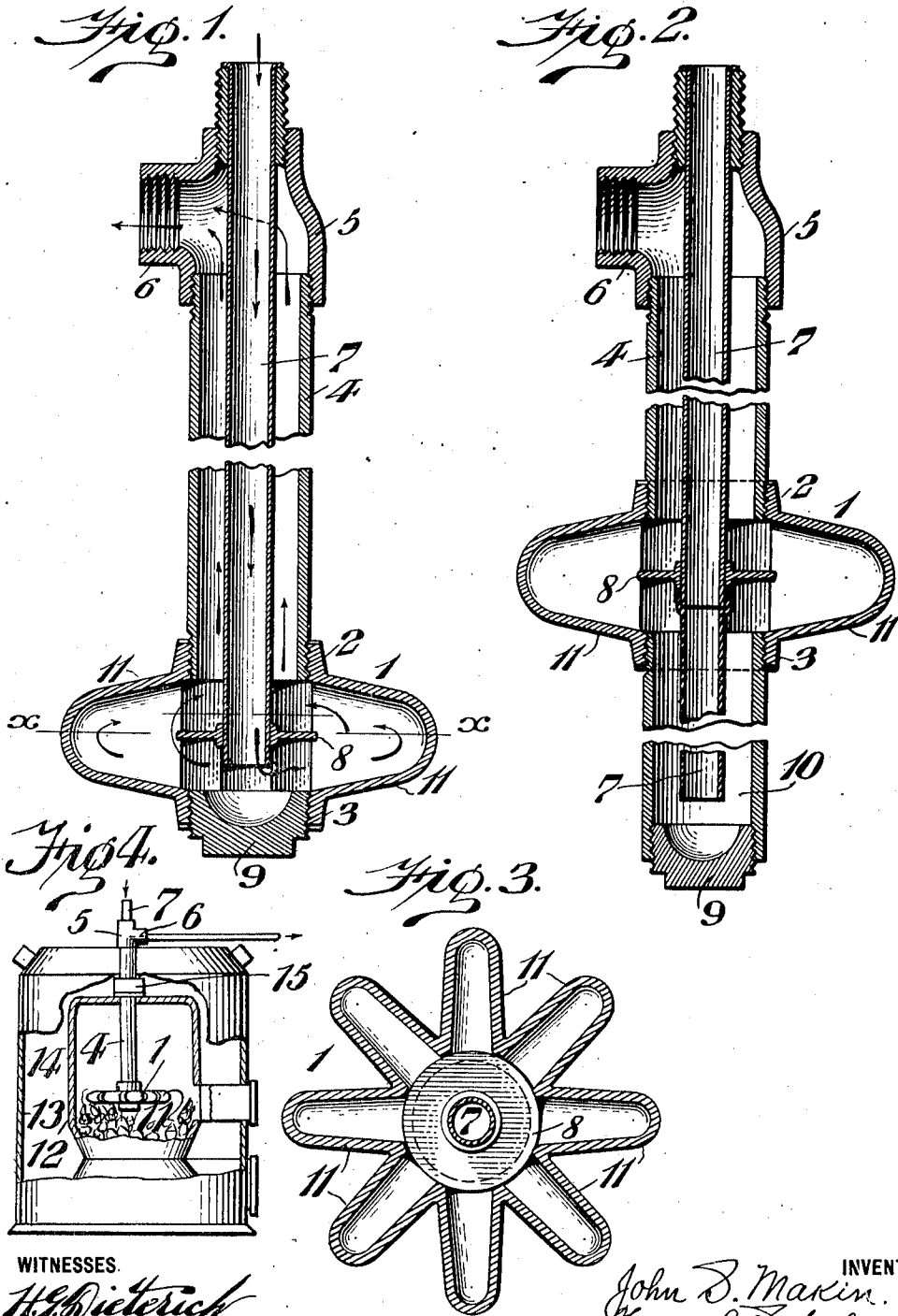


J. S. MAKIN & H. A. SCHELLMAN.
 AUXILIARY WATER HEATER.
 APPLICATION FILED JUNE 12, 1911.

1,022,148.

Patented Apr. 2, 1912.



WITNESSES

H. Dieterich
L. Couville

BY

INVENTORS

John S. Makin.
Henry A. Schellman.
Wiedersheim & Fairbanks.
 ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN S. MAKIN AND HENRY A. SCHELLMAN, OF PHILADELPHIA, PENNSYLVANIA,
ASSIGNORS TO THE MAKIN HEATING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

AUXILIARY WATER-HEATER.

1,022,148.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed June 12, 1911. Serial No. 632,534.

To all whom it may concern:

Be it known that we, JOHN S. MAKIN and HENRY A. SCHELLMAN, both citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Auxiliary Water-Heater, of which the following is a specification.

Our invention consists of an improved water-heater, particularly adapted to be supported within the fire-pot or combustion chamber of a furnace, stove or gas heater.

It further consists of a heating chamber having radiating hollow branches to provide a large heating surface.

It further consists of a heating chamber having a water feed pipe entering from above through the top of the same and surrounded by the discharge-pipe.

It further consists of a heating chamber having a water feed pipe entering it from above through the top of the same and extending into a pipe extension.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating our invention, we have shown in the accompanying drawings a preferred embodiment thereof which is at present preferred by us, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents an axial section of our improved water-heater. Fig. 2 represents an axial section of the heater, indicating a manner in which the heating chamber may be extended. Fig. 3 represents a transverse section of the heating chamber, taken on line $x-x$ in Fig. 1. Fig. 4 represents an elevation of a furnace in which our improved water heater is suspended, parts of the jacket and furnace being broken away and removed.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, the reference numeral 1 indicates a hollow chamber, pref-

erably of cast metal, formed with radiating hollow branches, 11, making it substantially star-shaped, and also formed at its top and bottom with internally threaded central nipples, 2 and 3, respectively. A pipe, 4, is screwed into the upper nipple 2, 60 and having a coupling, 5, screwed upon its upper end, which coupling has a lateral nipple, 6, into which may be screwed a pipe for conveying the heated water. A supply-pipe, 7, is axially secured in said coupling 65 and extends axially through the hot water discharge pipe 4, down to about the middle of the water-heating chamber, where a disk or baffle-plate, 8, surrounds the same and has its edges integral with or closely fitted 70 against the junction points of the sides of the radiating branches of the chamber. The bottom opening of the heating-chamber is closed by a plug, 9. If it is desired to extend the heating surface of the chamber, a 75 pipe or water-leg, 10, may be secured into the bottom nipple of said chamber to extend farther down into the fire-pot or combustion chamber, and the lower end of said pipe is closed by the plug 9. When the 80 heater is provided with the water-leg, the supply-pipe is extended to near the lower end of the latter.

In Fig. 4, the heater is illustrated in place in a furnace, the stove of which is indicated by the numeral 12, and between 85 which stove and the jacket, 13, the heating chamber, 14, is formed. The discharge-pipe 4 is suspended by a coupling, 15, or similar means resting upon the edge of an opening 90 in the top of the stove.

As cold water enters from above, it is warmed by passing through the hollow column of hot water ascending on the outside of the supply-pipe 7 through the discharge-pipe 4, and thereupon such water enters the heating chamber at the hottest point, at or below the bottom of the same, where it is directed outwardly by the baffle-plate 8 into the radiating branches of said chamber, being heated, whereupon the heated water 100 ascends in a hollow column through the discharge-pipe to a boiler or whatever destination may be provided for it. If the heating chamber is placed some distance above the 105 normal surface of the fuel-bed, and it is desired to provide additional heating surface, the downwardly extending tube or water-

leg, illustrated in Fig. 2, is employed and additional heating of the water in such water-leg is attained in the fuel-bed.

It is evident that one or more heating-chambers may be placed in a gas-heater or connected in a larger pipe so as to be surrounded by steam or smoke as well as in the fire-pot or combustion-chamber of a furnace or stove burning solid fuel.

By providing the inlet-pipe entering the heating-chamber from above, the water in said pipe will be preheated before entering such chamber, and there will be no interference by the heater with the fire-pot or combustion-chamber nor with the fuel in the same.

The water passing out at the lower end of the supply-pipe will pass around the edge of the baffle-plate and through the radiating branches of the chamber which thus form tortuous channels for the water so as to expose the same to the heat for a comparatively long space of time, and the star-shape of the chamber will provide a large heating surface.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a heating-chamber, a discharge-pipe extend-

ing from the top of the same, a supply-pipe projecting axially through said discharge-pipe into the interior of said chamber, and a baffle-plate secured to surround said supply-pipe above the lower end of the same.

2. In a device of the character stated, a heating chamber having radiating branches, a baffle-plate within said chamber and having its edges extending to the junction points of the walls of the radiating branches of the chamber, a discharge-pipe extending from the top of the chamber, and a supply-pipe projecting axially through the discharge-pipe and opening below said baffle-plate.

3. In a device of the character stated, a heating-chamber having radiating branches, a discharge-pipe extending from the top of said chamber, a supply-pipe extending axially through said discharge-pipe and into the chamber, a baffle-plate surrounding said supply-pipe above the lower end of the same, and a water-leg extending from the bottom of the heating chamber.

JOHN S. MAKIN.
HENRY A. SCHELLMAN.

Witnesses:

C. D. McVAY,
M. C. Fox.